UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,118	01/12/2005	Eric J. Strang	262790US6YAPCT	6785

22850 7590 02/10/2006

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
BARBEE, MANUEL L	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/521,118	STRANG ET AL.	
	Examiner	Art Unit	
	Manuel L. Barbee	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23,25-33 and 35-42* is/are rejected.

7)☒ Claim(s) *24 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 January 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference sign "30", discussed in the specification on page 7, par. 38, is not shown in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 26, 27, 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Sirkis et al. (WO 01/37306).

With regard to activating a controller and selecting a varactor voltage control, as shown in claim 26, Sirkis et al. teach using voltage controlled oscillator (VCO) bias signal processor to control a VCO voltage (Figure 3, VCO bias signal processor 101, VCO 103; page 10, lines 18-26). With regard to selecting a detector voltage monitor and adjusting the varactor voltage, as shown in claim 26, Sirkis et al. teach using the detector voltage to adjust the voltage of the VCO (Figure 3, detector 106; page 10, lines 18-26). With regard to a man-machine interface for adjusting the varactor voltage, as shown in claim 27, Sirkis et al. teach allowing the desired voltage of the VCO to be entered (page 11, line 30 - page 12, line 10).

With regard to activating the controller and selecting a resonance lock-on function and selecting a varactor voltage of the power source, as shown in claim 33, Sirkis teach using a VCO bias signal processor to control a VCO voltage and allowing the VCO voltage to be entered (Figure 3, VCO bias signal processor 101, VCO 103; page 10, lines 18-26; page 11, line 30 - page 12, line 10). With regard to lock in the output frequency of the power source to the cavity resonance of the multi-modal resonator, as shown in claim 33, Sirkis et al. teach using algorithms to establish lock between the VCO frequency and the resonant frequency of the open resonator (page 13, lines 14-27). With regard to providing a man-machine interface for setting the varactor voltage set-point, as shown in claim 35, Sirkis et al. teach allowing the desired voltage of the VCO to be entered (page 11, line 30 - page 12, line 10).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkis et al. in view of Williams (US Patent No. 6,133,795).

With regard to a multi-modal resonator, Sirkis et al. teach a multi-modal resonator (Fig. 3, resonator 105; page 10, lines 9-17). With regard to a power source, as shown in claim 1, Sirkis et al. teach a VCO (Fig. 3, VCO 103; page 10, lines 9, 10). With regard to a detector, as shown in claim 1, Sirkis et al. teach a detector (Fig. 3, detector 106; page 10, lines 18-26). With regard to a controller to provide varactor voltage control, as shown in claim 1, Sirkis et al. teach using a VCO bias signal processor to control the VCO voltage (Fig. 3, VCO bias signal processor 101; page 10, lines 18-26).

Sirkis et al. do not teach a Gunn diode VCO, as shown in claim 1. Williams teaches a Gunn diode VCO (col. 4, lines 28-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the stabilized oscillator circuit, as taught by Sirkis et al., to include a Gunn diode, as taught by Williams, because then the oscillator would have had less drift caused by temperature (Williams, col. 1, lines 24-42).

With regard to a man-machine interface (MMI), as shown in claim 2, Sirkis et al. teach allowing the desired VCO voltage to be entered by a keyboard or with a potentiometer (page 11, line 30 - page 12, line 10). With regard to varying the varactor voltage using the MMI, as shown in claim 8, Sirkis et al. teach allowing the desired VCO voltage to be entered by a keyboard or with a potentiometer (page 11, line 30 - page 12, line 10). With regard to activating a lock-on circuit, setting a varactor set-point, and activating the varactor voltage set-point, as shown in claim 11, Sirkis et al. teach an algorithm for establishing a lock between the VCO frequency and the resonant frequency of the open resonator using an initial VCO voltage (page 13, lines 14-27; page 16, lines 7-28).

6. Claims 3-6, 12-18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkis et al. in view of Williams as applied to claim 1 above, and further in view of Linley et al. (US Patent No. 6,766,279).

Sirkis et al. and Williams teach all the limitations of claim 1 upon which claims 3-6, 12 and 13 depend. Sirkis et al. and Williams do not teach a remote controller, as shown in claim 3, or a remote MMI, as shown in claim 4, a graphical user interface (GUI), as shown in claim 5, or executing software on the remote controller, as shown in claim 6. Linley et al. teach remote monitoring and control of an instrument that includes a computer executing software that allows a GUI in a web browser to be used to control a remote instrument (Abstract col. 3, line 24 - col. 4, line 29). The GUI is also a MMI. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al. and Williams,

to include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

With regard to presenting a varactor voltage set point, as shown in claim 13, Sirkis et al. teach allowing the desired VCO voltage to be entered by a keyboard or with a potentiometer (page 11, line 30 - page 12, line 10). Sirkis et al. and Linley et al. do not teach a GUI for presenting a plurality of setup parameters, shown in claim 11. Linley et al. teach a computer executing software that allows a GUI in a web browser to be used to control a remote instrument (Abstract col. 3, line 24 - col. 4, line 29). The GUI is also a MMI. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al. and Williams, to include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

Sirkis et al. and Williams do not teach a data directory panel that permits setting a directory location for storing or a GUI for providing the functions as shown in claims 14 and 15. Linley teaches a computer with the commonly known input and output functions including storing data in a database (col. 4, line 53 - col. 5, line 28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al. and Williams, to

include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because then data would have been available for later analysis.

With regard to a display panel for at least one data parameter, as shown in claim 16, Sirkis et al. teach a display (Fig. 5, display 112). With regard to a detector voltage, as shown in claim 17, Sirkis et al. teach measuring the detector voltage (Figure 3, detector 106; page 10, lines 18-26). Sirkis et al. and Williams do not teach a plot panel for selecting at least one data parameter, as shown in claim 18, or a GUI, as shown in claim 25. Linley et al. teach a web-based instrument that includes a GUI interface that allows the user to select the particular data to be displayed (col. 6, lines 24-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al. and Williams, to include a web based instrument that includes a GUI for controlling the data displayed, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkis et al. in view of Williams as applied to claim 2 above, and further in view of Fujii (US Patent No. 5,936,481).

Sirkis et al. and Williams teach all the limitations of claim 2 upon which claim 7 depends. Sirkis et al. and Williams do not teach displaying at least one of the parameters shown in claim 7. Fujii teaches displaying detector voltage (col. 4, lines 58-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al.

and Williams, to include a display, as taught by Fujii, because then visual detector monitoring would have been possible.

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkis et al. in view of Williams as applied to claim 2 above, and further in view of Strang (US Patent Application Publication 2004/0267547).

Sirkis et al. and Williams teach all the limitations of claim 2 upon which claims 9 and 10 depend. Sirkis et al. and Williams do not teach a voltage sweep function or a sweep generator, as shown in claims 9 and 10. Strang teaches a sweep function that includes sweeping the output frequency of the power source (par. 37, Figure 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al. and Williams, to include a sweep generator, as taught by Strang, because then the status of the processing system would have been determined (par. 9).

9. Claims 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkis et al. in view of Williams and Linley et al. as applied to claim 5 above, and further in view of Torii et al. (JP 03263828).

Sirkis et al., Williams and Linley et al. teach all the limitations of claim 5 upon which claims 19-23 depend. Further with regard to a resonance lock-on function, Sirkis et al. teach a resonance lock-on function, as shown above. Further, with regard to storing data to a file, as shown in claim, 21, Linley et al. teach storing data to a database, as shown above. Further, with regard to executing a control function, as shown in claim 22, or setting one data acquisition parameter, as shown in claim 23,

Linley et al. teach choosing a particular parameter to be displayed from the remote instrument, as shown above.

Sirkis et al., Williams and Linley et al. do not teach a mode panel, as shown in claim 19. Torii et al. teaches selecting a stabilizing mode in plasma process (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al, Williams and Linley, to include selecting a stabilizing mode, as taught by Torii et al., because then the frequency lock-on would have been improved (Torii et al., Abstract).

10. Claims 28, 36 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkis et al. in view of Linley.

Sirkis et al. teach all the limitations of claim 26 upon which claim 28 depends. Sirkis et al. teach all the limitations of claim 33 upon which claim 36 depends. Sirkis et al. do not teach a GUI for setting control functions, as shown in claims 28 and 36. Linley et al. teach remote monitoring and control of an instrument that includes a computer executing software that allows a GUI in a web browser to be used to control a remote instrument (Abstract col. 3, line 24 - col. 4, line 29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit, as taught by Sirkis et al., to include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

With regard to activating the controller, selecting a resonance lock-on control and activating the resonance lock-on, as shown in claim 33, Sirkis et al. teach using algorithms to establish lock between the VCO frequency and the resonant frequency of the open resonator (page 13, lines 14-27). A voltage for the VCO is not necessarily set and therefore default settings may be used. Sirkis et al. do not teach a remote MMI, as shown in claim 33. Linley et al. teach remote monitoring and control of an instrument that includes a computer executing software that allows a GUI in a web browser to be used to control a remote instrument (Abstract col. 3, line 24 - col. 4, line 29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit, as taught by Sirkis et al., to include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

With regard to modifying the default settings such as a varactor voltage set-point, as shown in claims 41 and 42, Sirkis et al. teach allowing the VCO voltage to be entered if desired (page 11, line 30 - page 12, line 10).

11. Claims 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strang in view of Fujii.

With regard to activating a controller and selecting a varactor voltage sweep control, as shown in claim 29, Strang teaches a controller and sweeping the voltage of a VCO (pars. 28, 29, 37). Strang does not teach coupling the varactor voltage and the detector to a display, as shown in claim 29. Fujii teaches displaying the VCO voltage

and the detector voltage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the status monitoring system, as taught by Strang, to include a display, as taught by Fujii, because then visual detector monitoring would have been possible.

12. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strang in view of Fujii as applied to claim 29 above, and further in view of Linley et al.

Strang and Fujii teach all the limitations of claim 29 upon which claims 30-32 depend. Strang and Fujii do not teach a computer, digital signal processor or an oscilloscope, as shown in claim 30, or a MMI or GUI for performing and setting the control function, as shown in claims 31 and 32. Linley et al. teach remote monitoring and control of an instrument that includes a computer executing software that allows a GUI in a web browser to be used to control a remote instrument (Abstract col. 3, line 24 - col. 4, line 29). The GUI is also a MMI. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the oscillator circuit combination, as taught by Sirkis et al. and Williams, to include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

13. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strang in view of Linley et al.

With regard to activating the controller, selecting a varactor sweep voltage and using default settings, as shown in claim 37, Strang teaches a controller for a plasma

process and a sweep process (pars. 28, 29, 37). Sweep parameters may or may not be set and therefore default settings may be used (par. 37). Strang do not teach a remote MMI interface, as shown in claim 37. Linley et al. teach remote monitoring and control of an instrument that includes a computer executing software that allows a GUI in a web browser to be used to control a remote instrument (Abstract col. 3, line 24 - col. 4, line 29). The GUI is also a MMI. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the status monitoring system, as taught by Strang, to include a remote controller with a GUI to control a remote instrument, as taught by Linley et al., because the instrument could have been operated from many different locations (Linley et al. col. 1, lines 39-55; col. 2, line 66 - col. 3, line 7).

With regard to modifying the default settings such as the minimum and maximum varactor voltage, Strang teaches setting the sweep range (par. 37).

Allowable Subject Matter

14. Claims 24 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Verdeyen et al. (WO 01/06402) teach electron density measurement.

Verdeyen et al. (WO 01/06544) teach electron density measurement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 571-272-2212. The examiner can normally be reached on Monday-Friday from 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manuel L. Barbee
Examiner
Art Unit 2857

mlb
February 3, 2006